ENV101: Environmental Science

Credit Hours: 4
Prerequisites: NONE

Course Description

Environmental Science is a general course for non-biology majors in which students will explore the following basic principles: concepts required to understand interrelationships of the environment and the natural world; environmental problems both natural and man-made; risks associated with air, water, land pollution; health of humans and ecosystems; deforestation and climate change; overpopulation and environmental law, economics, and ethics.

Instructor Contact Information

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Course Length

The college evaluates each course in terms of quarter hours of credit. One unit of credit is usually equivalent to a minimum of ten (10) academic instruction hours of lecture and examination, twenty (20) hours of skill development, or thirty hours of externship, or a combination of the three. An academic instructional hour is fifty (50) minutes.

This class will meet for the equivalent of a minimum of four (4) instructional hours per week for eleven (11) weeks or as otherwise scheduled by the college and at least in conformance with this minimum and the Syllabus. As specified under the Method of Instruction section of this Syllabus, the instructor will ensure that the minimum total class sessions presented consist of direct faculty instruction or appropriate classroom activity.

All course offerings require outside preparation time, which is approximately two hours per lecture instructional hour and/or one hour per skill development instructional hour, depending on the background, interest, abilities, and motivation of the individual student.

Course Objectives

Through in-class and out-of-class assignments and testing on criterion-reference instructions with a minimum score of 64% accuracy, the student will:

1. Understand the major environmental problems facing civilization
2. Appreciate the limits of science and technology in addressing environmental problems
3. Understand the impact environmental science has on daily living and working
4. Appreciate how philosophy and cultural norms impact the perception of environmental problems solutions
5. Effectively communicate and transfer scientific knowledge
6. Understand and define terminology used in environmental science
7. Summarize/describe global and regional environmental processes and systems
8. Evaluate environmental information and data using scientific principles and concepts
9. Discuss human impact on biotic communities, soil, water and air
10. Apply learned information to postulate environmental solutions and scenarios
11. Discuss the importance of the environment and ecology
12. Describe food chains and their workings
13. Describe how ecosystems work and describe the energy flow in these systems

14. Discuss the importance of ethics in science
15. Discuss the importance of bio-diversity
16. List and describe the domains of life
17. Diagram and describe the interrelationships of organisms in the environment (ecosystem)
18. Discuss and describe ecosystems, ecological pyramids, nutrients and chemical cycles
19. Describe energy flow and transfer in our ecosystem
20. List and describe the factors regulating the cycles of water, carbon, chemicals and nitrogen
21. Discuss the importance of the sun in the atmospheric circulation

Gradebook

A student's performance in this course will be evaluated using a variety of the areas listed below. Instructors must use a minimum of three (**homework, tests and a final exam are required**), and it is recommended that instructors use all five of the areas in your evaluation.
The exact weight to be given to any particular area is determined by the instructor and will normally fall within the ranges listed below.

Area	Percentage for this Course	Suggested Range
Final Exam	25%	20 – 25%
Tests	40%	20 – 40%
Homework	15%	10 – 15%
Project/Research Paper	10%	20 – 25%
Class Participation	10%	10 – 15%
TOTAL	100%	

Letter Grade	Points	Explanation
A	94-100	Excellent
B	84-93	Above Average
C	74-83	Average
D	64-73	Below Average
F	63 & Below	Failure

Textbook & Instructional Material

Miller, G. Tyler and S. E. Spoolman. Environmental Science. Belmont, CA: Cengage, 2010.

The instructor might utilize additional instructional materials as provided by the publisher.

Course Outline

Week 1	
Topics	Environmental Problems, Their Causes, and Sustainability Science, Matter, and Energy
Material Covered	Chapter 1, 2
In Class Activities	Do all Critical Thinking questions in the chapters for this week.
Homework	☐ Do the Discussion Forum assignment, Quiz and review the PowerPoint Presentations posted on Web-Site for this week. ☐ ☐ ☐
Week 2	
Topics	Ecosystems: What Are They and How Do They Work? Biodiversity and Evolution
Material Covered	Quiz on Week 1 Chapter 3, 4
In Class Activities	Do all Critical Thinking questions in the chapters for this week.
Homework	☐ Do the Discussion Forum assignment, Quiz and review the PowerPoint Presentations posted on Web-Site for this week. ☐ ☐ ☐
Week 3	
Topics	Biodiversity, Species Interactions, and Population Control
Material Covered	Quiz on Week 2 Chapter 5
In Class Activities	Do all Critical Thinking questions in the chapters for this week.
Homework	☐ Do the Discussion Forum assignment, Quiz and review the PowerPoint Presentations posted on Web-Site for this week. ☐ ☐ ☐
Week 4	
Topics	The Human Population and Urbanization Climate and Biodiversity
Material Covered	Test Chapters 1 - 5 Chapter 6, 7
In Class Activities	Do all Critical Thinking questions in the chapters for this week.
Homework	☐ Do the Discussion Forum assignment, Quiz

	and review the PowerPoint Presentations posted on Web-Site for this week. ☐ ☐ ☐
Week 5	
Topics	Sustaining Biodiversity: The Species Approach Sustaining Biodiversity: The Ecosystem Approach
Material Covered	Quiz on Week 4 Chapter 8, 9
In Class Activities	Do all Critical Thinking questions in the chapters for this week.
Homework	☐ Do the Discussion Forum assignment, Quiz and review the PowerPoint Presentations posted on Web-Site for this week. ☐ ☐ ☐
Week 6	
Topics	Food, Soil, and Pest Management Water Resources and Water Pollution
Material Covered	Quiz on Week 5 Chapter 10, 11
In Class Activities	Do all Critical Thinking questions in the chapters for this week.
Homework	☐ Do the Discussion Forum assignment, Quiz and review the PowerPoint Presentations posted on Web-Site for this week. ☐ ☐ ☐
Week 7	
Topics	Geology and Nonrenewable Minerals Energy
Material Covered	Test on Ch. 6 - 10 Chapter 12, 13
In Class Activities	Do all Critical Thinking questions in the chapters for this week.
Homework	☐ Do the Discussion Forum assignment, Quiz and review the PowerPoint Presentations posted on Web-Site for this week. ☐ ☐ ☐
Week 8	
Topics	Environmental Hazards and Human Health Air Pollution, Climate Change, and Ozone Depletion
Material Covered	Quiz on Week 7 Chapter 14, 15

In Class Activities	Do all Critical Thinking questions in the chapters for this week.
Homework	☐ Do the Discussion Forum assignment, Quiz and review the PowerPoint Presentations posted on Web-Site for this week. ☐ ☐ ☐
Week 9	
Topics	Solid and Hazardous Waste Environmental Economics, Politics, and Worldviews
Material Covered	Quiz on Week 8 Chapter 16, 17
In Class Activities	Do all Critical Thinking questions in the chapters for this week.
Homework	☐ Do the Discussion Forum assignment, Quiz and review the PowerPoint Presentations posted on Web-Site for this week. ☐ ☐ ☐
Week 10	
Topics	Project Presentations and Exam Review
Material Covered	
In Class Activities	Do all Critical Thinking questions in the chapters for this week.
Homework	☐ Do the Discussion Forum assignment, Quiz and review the PowerPoint Presentations posted on Web-Site for this week. ☐ ☐ ☐
Week 11	
Final	**In-Class Final Exam**

During terms that include less than 11 weeks, instructional time will be changed to accommodate all materials, resources, research activities, etc.

Method of Instruction

Instructional techniques must be appropriate, and at a collegiate level, to the specific goals and objectives, i.e. intended learner outcomes, cited above. Students and instructors must have a clear understanding of the intended learner outcomes to be mastered and time requirements of the course, the nature of the course context, and the method of evaluation.

The method of instruction is primarily lecture and provides instruction in theory, principles, or practices of the discipline. The instructor will provide classroom presentations in a variety of lecture formats. Methods of instruction must fulfill the intended learner outcomes and competencies stated in the course goals and objectives

and are appropriate to the capabilities of the students. For career oriented courses, the instructor must demonstrate that an effective relationship exists between curricular content and current practices in the field.

Effective instruction depends largely upon the maintenance of an environment conducive to study and learning. For this reason, the instructor must provide for his/her students a learning environment in which scholarly and creative achievement is encouraged in the classroom.

Additional Class Notes

Go to http://www.openeducation.org/moodle to use the Web-Assisted site for this course. Quizzes and discussion forums will be completed on-line at this site.